DETAILED ACTION

1.   This communication is in response to Applicant's Amendment and RCE to Office Action

dated February 2, 2009, filed December 10, 2009, following personal interview conducted

December 4, 2009.

1-1.   Claims 1, 2, 8-10, 43, 46, 48, 50, 52, and 55 have been amended. Claims 6, 11, 13, 20-

22, and 45 have been canceled. Claims 1-5, 7-10, 12, 14-19, 34, 40-44, and 46-55 are pending.

1-2.   Claims 1-5, 7-10, 12, 14-19, 34, 40-44, and 46-55 have been examined and allowed.

Interview Summary

2.   A personal interview with the Applicant, Dr. Francis X. Canning, has been conducted on

December 4, 2009. Proposed amendments to the claims to particularly point out and distinctly

claim the subject matter and to overcome the rejections in Office Action dated February 2, 2009,

have been discussed. Furthermore, the following agreements have been reached.

       (1) Cancel claims 6, 11, 13, 20-22, and 45.

       (2) Amend claims 1, 2, 8-10, 43, 46, 48, 50, 52, and 55 to overcome the rejections in

Office Action dated February 2, 2009.

       (3) Applicant would like to consult his representative before filing any amendment.

Examiner's Amendment

3.   An Examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to Applicants, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

4.   Authorization for this Examiner's amendment was given in a personal interview with Dr. Francis X. Canning on December 12, 2009.

5.   The claim has been amended as follows:

5-1.   Replace claim 10 as follows:

10.   (Currently Amended) A method of data compression, comprising:

         using software loaded into a computer-readable memory attached to a computer processor, storing at least a portion of a first system of equations in said computer-readable memory, said first system of equations modeling at least one of an electric field, a magnetic field, a pressure, and a particle flux produced by at least one of a distribution of electric charge, an electric current, an exciting pressure, and an exciting particle flux;

         calculating one or more composite sources as a linear combination of more than one basis functions, wherein at least one of said composite sources is configured to produce a relatively weak disturbance in a portion of space related to said at least one composite source;

         using said computer processor, calculating one or more composite testers as a linear combination of more than one weighting functions, wherein at least one of said composite testers is configured to be relatively weakly affected by disturbances propagating from a portion of space related to said at least one composite tester;

         using said computer processor, transforming at least a portion of said first system of equations based on said basis functions and said weighting functions into a second system of equations based on said composite sources and said composite testers, wherein for an element of

said second system of equations one of said one or more composite sources and one of said one

or more composite testers are computed using at least partially different data, and wherein said

second system of equations is compressed relative to said first system of equations; and

　　　　using said second system of equations to compute and store said at least one of an

electric field, a magnetic field, a pressure, and a particle flux, resulting, at least in part, from at

least one of said a distribution of electric charge, an electric current, an exciting pressure, and an

exciting particle flux.

> **Deleted:** said more than one basis functions

Reasons for Allowance

6.　　　　The following is an Examiner's statement of reasons for allowance:

6-1.　　　　The prior art does not teach or render obvious the invention as recited in independent

claims 1, 2, 10, and 55.

　　　　Specifically, independent claim 1 has identified the distinct combination of features

including "selecting a plurality of spherical angles", "calculating a far-field disturbance produced

by each of said basis functions in a first group for each of said spherical angles to produce a

matrix of transmitted disturbances", "to reduce a rank of said matrix of transmitted

disturbances", "to reduce a rank of said matrix of received disturbances", "at least a portion of

said second system of equations is compressed relative to said system of linear equations", and

"at least a portion of said matrix of transmitted disturbances is different from said matrix of

received disturbances" as shown in FIG. 2 and FIG. 10, which has not been uncovered in a single

teaching, nor would a modification of prior art references be obvious to one of ordinary skill in

the art to yield these limitations in the context of the claim.

Independent claim 2 has identified the distinct combination of features including "selecting a first plurality of angular directions", "calculating a disturbance produced by each of said basis functions in a first group for each of said angular directions to produce a matrix of disturbances", "using said matrix of disturbances to compute a second set of basis functions", "using said matrix of received disturbances to compute a second set of weighting functions", "at least a second portion of said transformed system of equations is compressed relative to said system of equations", and "wherein for an element of said second portion of said transformed system of equations said matrix of disturbances is, at least in part, different from said matrix of received disturbances" as shown in FIG. 2 and FIG. 10, which has not been uncovered in a single teaching, nor would a modification of prior art references be obvious to one of ordinary skill in the art to yield these limitations in the context of the claim.

Independent claim 10 has identified the distinct combination of features including "at least one of said composite sources is configured to produce a relatively weak disturbance in a portion of space", "at least one of said composite testers is configured to be relatively weakly affected by disturbances propagating from a portion of space", and "wherein for an element of said second system of equations one of said one or more composite sources and one of said one or more composite testers are computed using at least partially different data, and wherein said second system of equations is compressed relative to said first system of equations" as shown in FIG. 2 and FIG. 10, which has not been uncovered in a single teaching, nor would a modification of prior art references be obvious to one of ordinary skill in the art to yield these limitations in the context of the claim.

Independent claim 55 has identified the distinct combination of features including "selecting a plurality of spherical angles", "calculating a far-field disturbance produced by each of said basis functions in a first group for each of said spherical angles to produce a matrix of transmitted disturbances", "reducing a rank of said matrix of transmitted disturbances", and "wherein at least a portion of said second system of equations is compressed relative to said system of linear equations and wherein at least a first portion of said second system of equations uses said composite sources and said testers" as shown in FIG. 2 and FIG. 10, which has not been uncovered in a single teaching, nor would a modification of prior art references be obvious to one of ordinary skill in the art to yield these limitations in the context of the claim.

Moreover, as stated in MPEP § 2131.02, "The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, i.e., identity of terminology is not required. In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Therefore, independent claims 1, 2, 10, and 55 and their dependent claims have been allowed over the prior art of record.

7.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The

Examiner can normally be reached on 9:00 - 17:30.

        Any inquiry of a general nature or relating to the status of this application should be

directed to the TC 2100 Group receptionist: (571) 272-2100.

        If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the

organization where this application or proceeding is assigned is (571) 273-8300.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

                                    /Kamini S Shah/
                        Supervisory Patent Examiner, Art Unit 2128

/Herng-der Day/
Examiner, Art Unit 2128

December 12, 2009